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**Reducing the Energy Output of Machine Tools**

**No business should ever underestimate the large amount of energy consumed by machine tools.  Cooling enclosures and spindles alone commonly account for more than 15 per cent of a company’s annual energy bill.**

**A test installation at a CNC lathe has demonstrated that Rittal Blue e+ chillers significantly reduce energy consumption while also being simple and easy to use.**

Bosch Rexroth AG, a long-established global manufacturing company, runs an energy efficiency consultancy called GoGreen at its headquarters in the Bavarian town of Lohr am Main.

GoGreen’s purpose is to examine and improve the energy efficiency of the company’s production plants worldwide. To this end, GoGreen works closely with institutes, as well as technology partners such as Rittal, to test possible solutions.

One of the most important research projects which GoGreen is involved in is the “Eta-Fab” (energy efficiency, technology and application centre) project at the Technical University of Darmstadt.

The project is headed by the University’s Institute for Production Management, Technology and Machine Tools (PTW); a facility that can closely replicate conditions and processes used in the Rexroth plant in Elchingen, allowing effective and accurate testing of potential innovations in areas such as improving the energy efficiency of machine tools.

**Retrofitting CNC lathes**

Among the products made at the Elchingen plant are hydraulic pumps and motors for mobile machines.  Many of the components for the hydraulic power units are manufactured on a CNC lathe which has a total connected load of 75 kVA and runs for up to six days a week in three-shift operation.

CNC lathes need their spindles to be cooled to dissipate the heat generated by the drive technology – and this is typically achieved through liquid cooling.

The GoGreen team examined what would be the impact of replacing the existing compressor cooling unit on the lathe, with a new Rittal Blue e+ Chiller.  The Blue e+ delivers the cooling medium and its DC compressor, controlled by an inverter, generates the necessary cooling output in the chiller. A circuit then transports the cooling medium to the spindles.

**An impressive increase in energy efficiency**

The test demonstrated that the Blue e+ could reduce energy consumption significantly.  Leo Pototzky, GoGreen Project Manager, Bosch Rexroth, said of the trial:   “The Rittal Blue e+ chiller consumes 50 per cent less electrical energy than the old chiller, while the saving achieved by the cooling unit in the enclosure even exceeded 80 per cent. This example shows us that a great potential still exists in many sectors.”

**Ease of Use**

The trial also highlighted how easy the Blue e+ is to operate.  The control panel with its touch display communicates to operators in plain text, and in up to 21 different languages.  This means that operators receive clear information and updates in status, which allows them to respond quickly to any issues.

The Blue e+ App communicates with the cooling units via NFC (Near Field Communication, an international transmission standard based on RFID technology for contactless data exchange), allowing important information to be transmitted wirelessly; a functionality which is especially important when a number of chillers have been configured.  It allows operators easy operational oversight and facilitates a swift response, if required.

Further information at [www.rittal.co.uk](file:///C:\Users\Caroline.Burden\AppData\Local\Temp\notes3FA69B\www.rittal.co.uk) and [www.friedhelm-loh-group.com](http://www.friedhelm-loh-group.com/) or on twitter @rittal\_ltd.     

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**Image**  
Picture shows:  Rittal’s Blue e+ chiller  
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**Notes to Editors**  
Rittal, headquartered in Herborn, Hesse, Germany, is a leading global provider of solutions for industrial enclosures, power distribution, climate control and IT infrastructure, as well as software and services. Rittal solutions can be found in more than 90 percent of all industrial sectors worldwide.

Systems made by Rittal are deployed across a variety of industrial and IT applications, including vertical sectors such as the transport industry, power generation, mechanical and plant engineering, IT and telecommunications. Rittal is active worldwide with 9,300 employees and 58 subsidiaries. Its broad product range includes infrastructure solutions for modular and energy-efficient data centres with innovative concepts for the security of physical data and systems.

Leading software providers Eplan and Cideon complement the value chain, providing interdisciplinary engineering solutions, while Rittal Automation Systems offers automation systems for switchgear construction.

Founded in Herborn in 1961 and still run by its owner, Rittal is the largest company in the Friedhelm Loh Group. The Friedhelm Loh Group operates worldwide with 18 production sites and 80 international subsidiaries. The entire group employs 12,000 people and generated revenues of €2.6 billion in 2018. For the tenth time in succession, the family business has won the accolade “Top German Employer” in 2018.

A Germany-wide survey by Focus Money magazine named Friedhelm Loh Group as one of the nation’s top companies in terms of vocational training for the third year running in 2018.

Further information can be found at [www.rittal.com](file:///C:\Users\Caroline.Burden\AppData\Local\Temp\notes3FA69B\www.rittal.com) and [www.friedhelm-loh-group.com](file:///C:\Users\Caroline.Burden\AppData\Local\Temp\notes3FA69B\www.friedhelm-loh-group.com).